

**FIG. 1A
(PRIOR ART)**

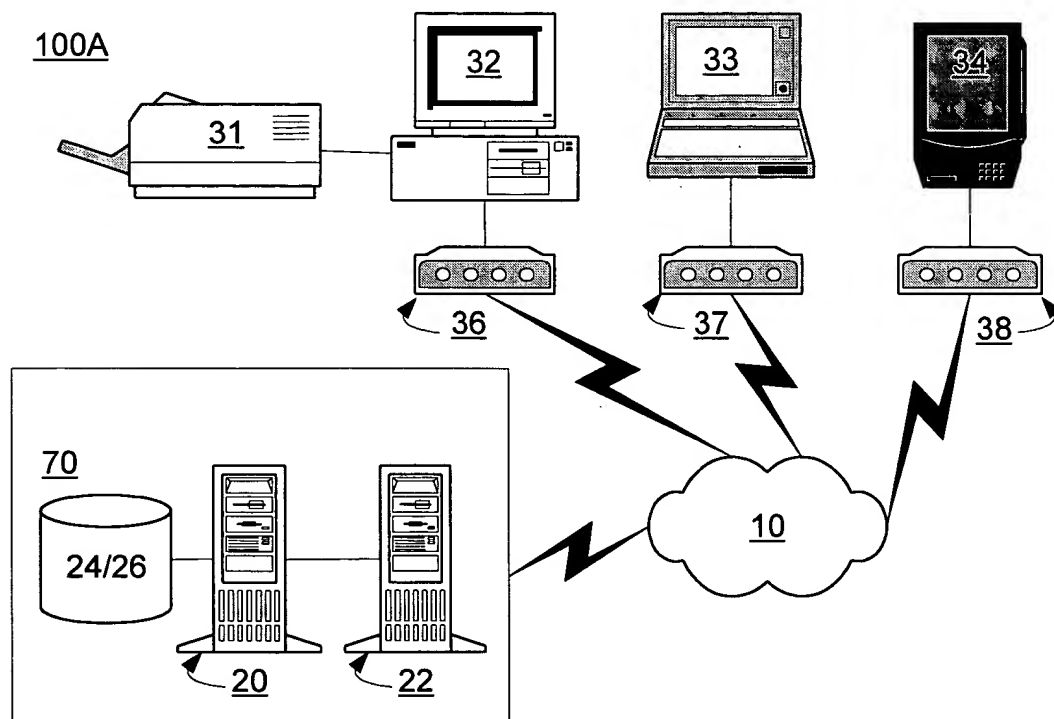


FIG. 1B

DATE: 3/26/00

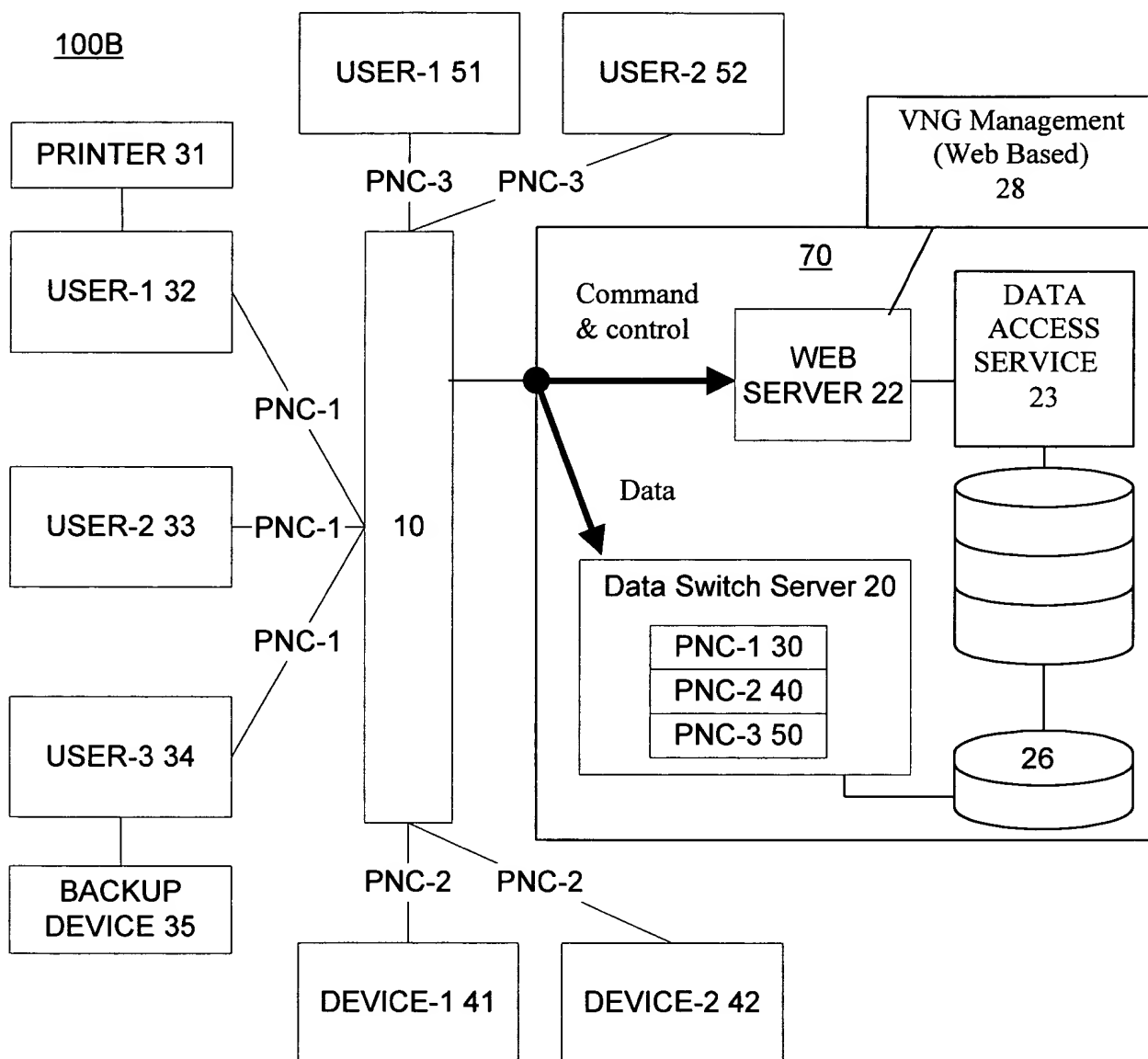


FIG. 1C

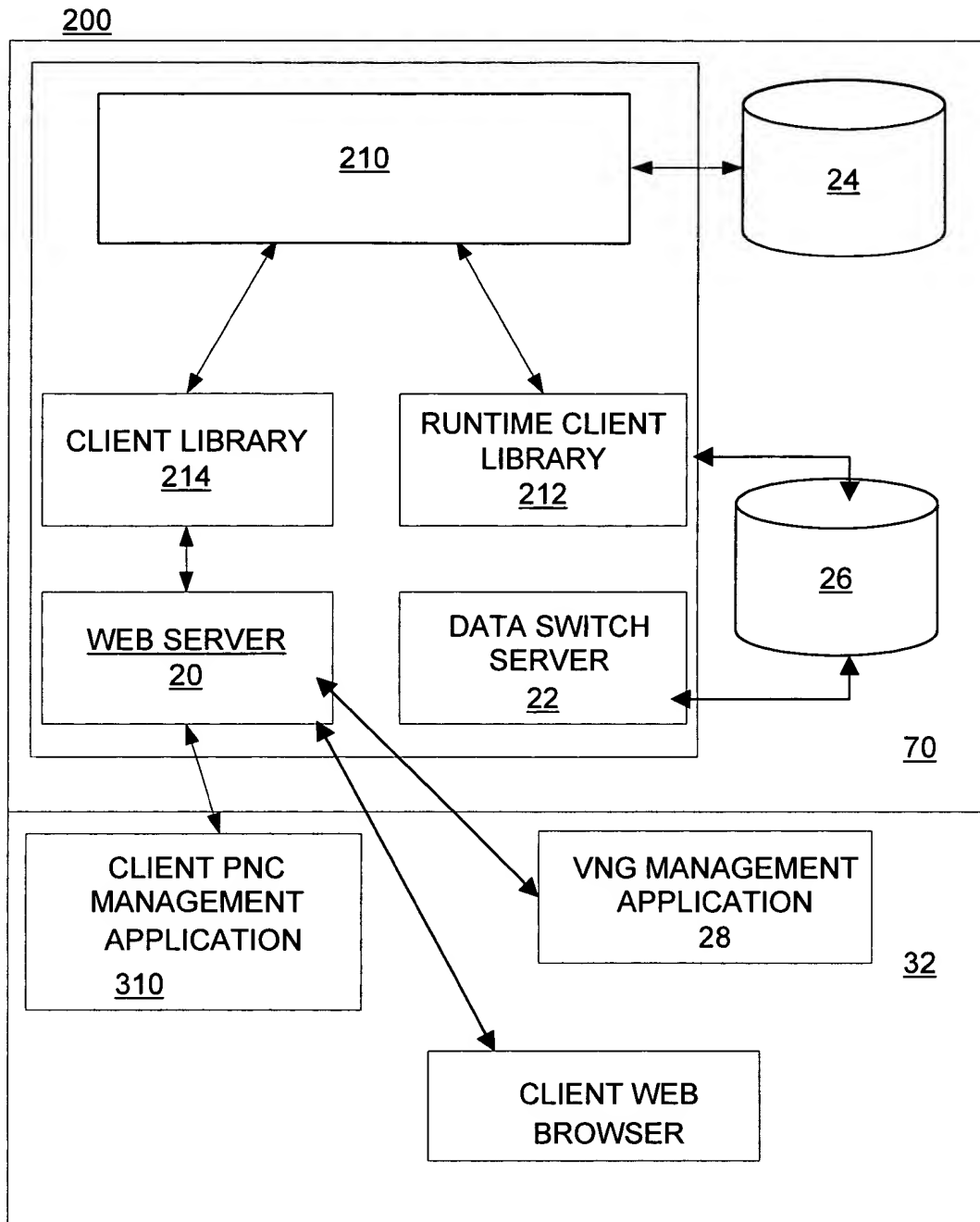


FIG. 2

The diagram illustrates the architecture of the PNC Client and PNC Management Application, showing their interaction with a Data Switch Service and a Web Server.

300

32

PNC CLIENT 310

BACK END SERVICES 330

NTWK EMULATION 332

VIRTUAL NIC DRIVER 334

OPT-BUS/Intermediate DRIVER 336

COMM SERVICES 338

PNC MGMT APP 320

BROWSER ONLY BASED APP

AND/OR

NATIVE CLIENT APP

OS & FILE SYSTEM I/F 322

BROWSER I/F 324

70

DATA SWITCH SRV 20

SWITCH MGR 344

WEB SERVER 22

CM CONSOLE 370

DATA ACCESS SERVICE 20

PNC MGR 350

REG MGR 342

SECURITY MGR 346

BILLING MGR 360

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graph TD
    subgraph 300
        subgraph 32
            subgraph PNC_CLIENT [PNC CLIENT 310]
                subgraph BACK_END_SERVICES [BACK END SERVICES 330]
                    subgraph NTWK_EMULATION [NTWK EMULATION 332]
                        VIRTUAL_NIC_DRIVER [VIRTUAL NIC DRIVER 334]
                    end
                    OPT_BUS_INTERMEDIATE_DRIVER [OPT-BUS/Intermediate DRIVER 336]
                end
                COMM_SERVICES [COMM SERVICES 338]
            end

            subgraph PNC_MGMT_APP [PNC MGMT APP 320]
                BROWSER_ONLY [BROWSER ONLY BASED APP]
                AND_OR [AND/OR]
                subgraph NATIVE_CLIENT_APP [NATIVE CLIENT APP]
                    OS_FILE_SYSTEM_I_F [OS & FILE SYSTEM I/F 322]
                end
                BROWSER_I_F [BROWSER I/F 324]
            end
        end

        PNC_CLIENT <--> PNC_MGMT_APP
    end

    subgraph 70
        DATA_SWITCH_SRV [DATA SWITCH SRV 20]
        WEB_SERVER [WEB SERVER 22]
        DATA_ACCESS_SERVICE [DATA ACCESS SERVICE 20]

        DATA_SWITCH_SRV <--> PNC_CLIENT
        WEB_SERVER <--> PNC_MGMT_APP

        subgraph DATA_ACCESS_SERVICE_BOX [DATA ACCESS SERVICE 20]
            PNC_MGR [PNC MGR 350]
            REG_MGR [REG MGR 342]
            SECURITY_MGR [SECURITY MGR 346]
            BILLING_MGR [BILLING MGR 360]
        end
    end

```

FIG. 3

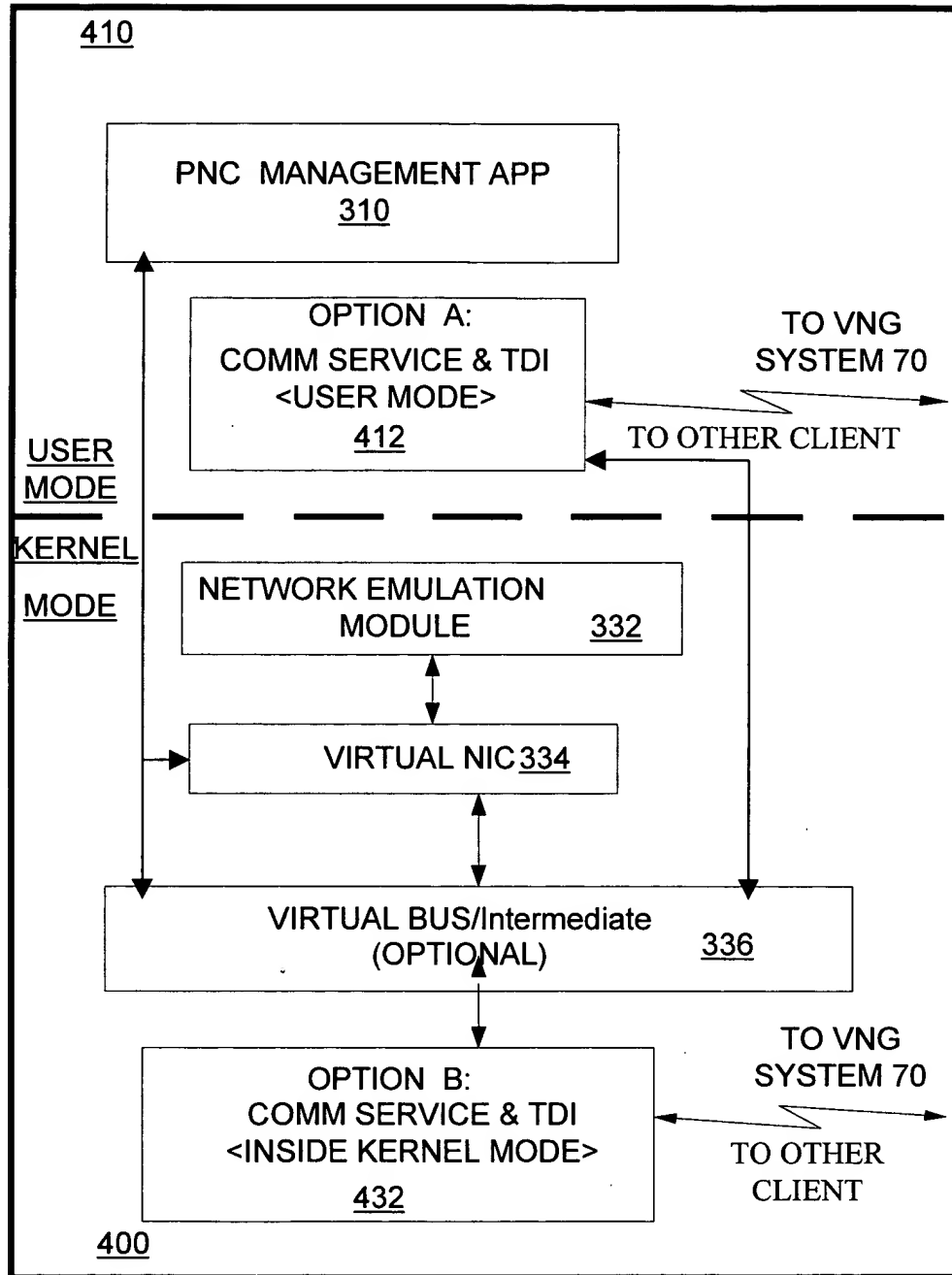


FIG. 4

0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Version				U	R	C	T	N	x	x	Header Size				Command				Reserved												
Destination NM host															Source NM host																
Group ID																															
Data Length															Payload protocol																
User signature																															
-- User signature --																															
Destination IP address (On “real” IP network)																															
Destination IP port															Reserved																

FIG. 5A

NAME	NUMBER	DATA	CLIENT	SERVER	ACK
Acknowledge	0x00	[Optional]	Tx,Rx	Rx,Tx	-
Acknowledge request	0x01	[Optional]	Tx,Rx	Rx,Tx	+
Acknowledge reply	0x03	[Optional]	Tx,Rx	Rx,Tx	-
Data Packet	0x04	Data packet	Tx,Rx	Rx,Tx	-

FIG. 5B

004027-5626260

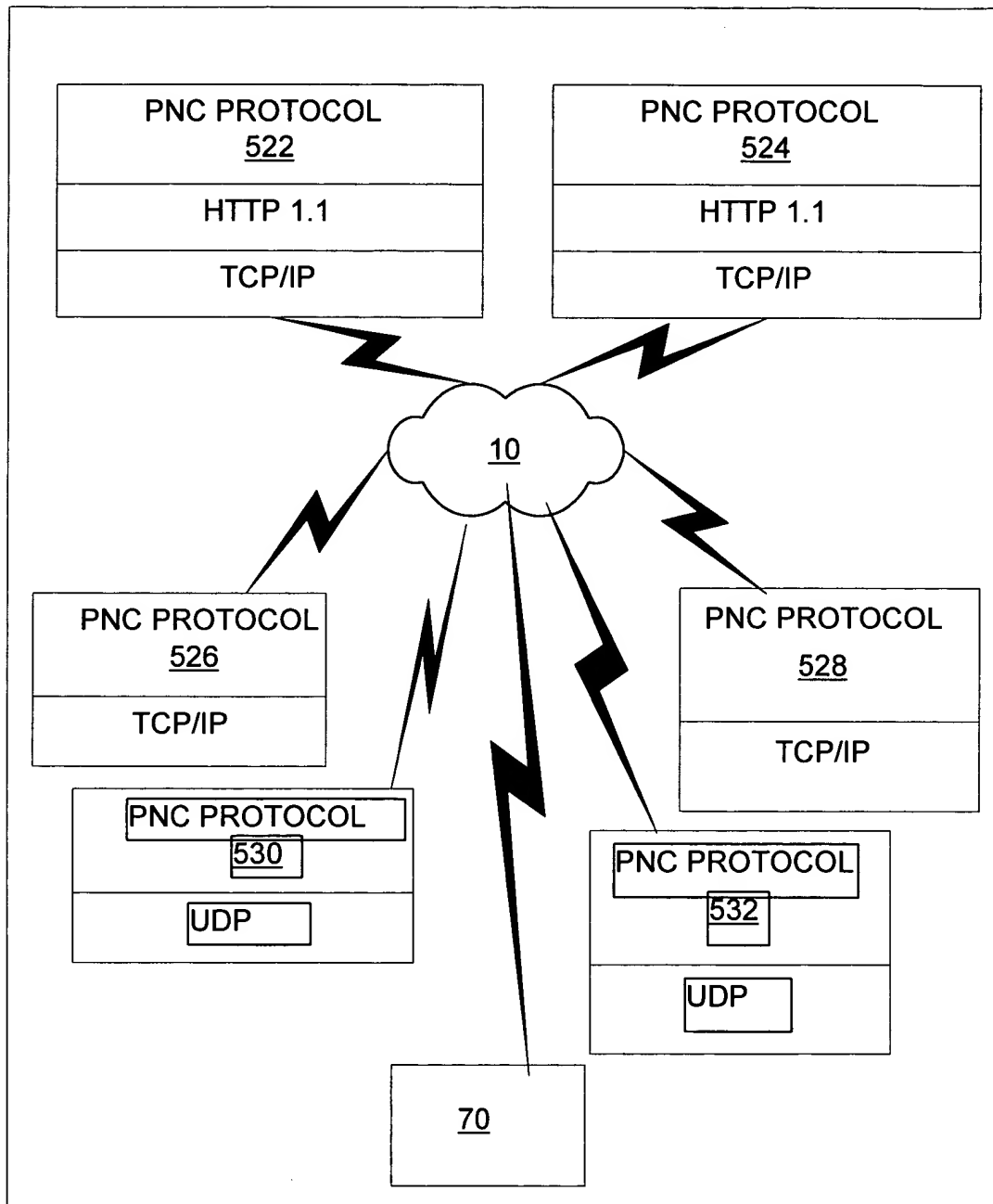
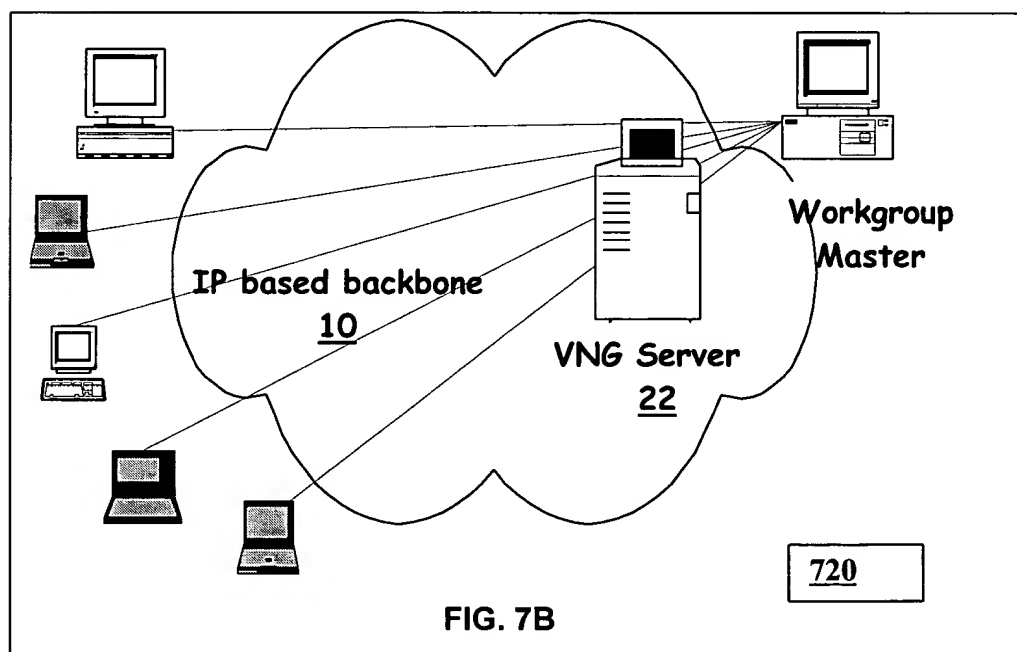
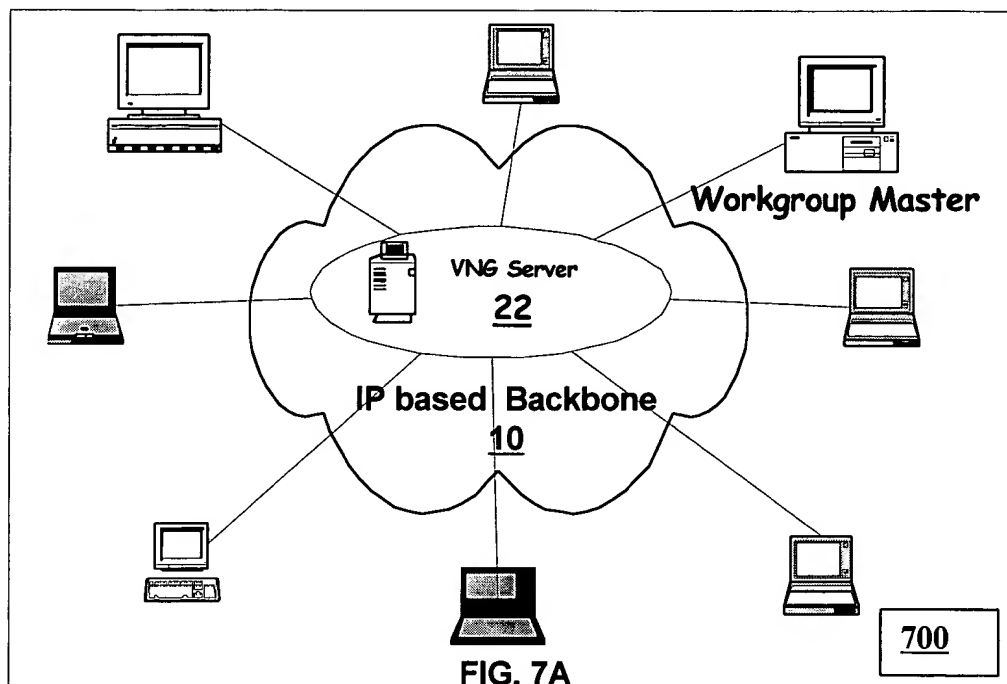


FIG. 5C





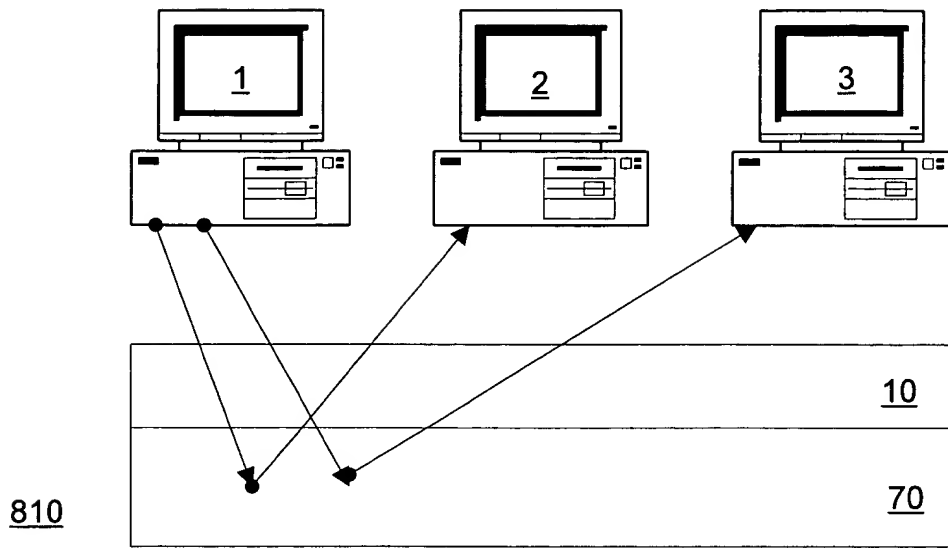


FIG. 8A

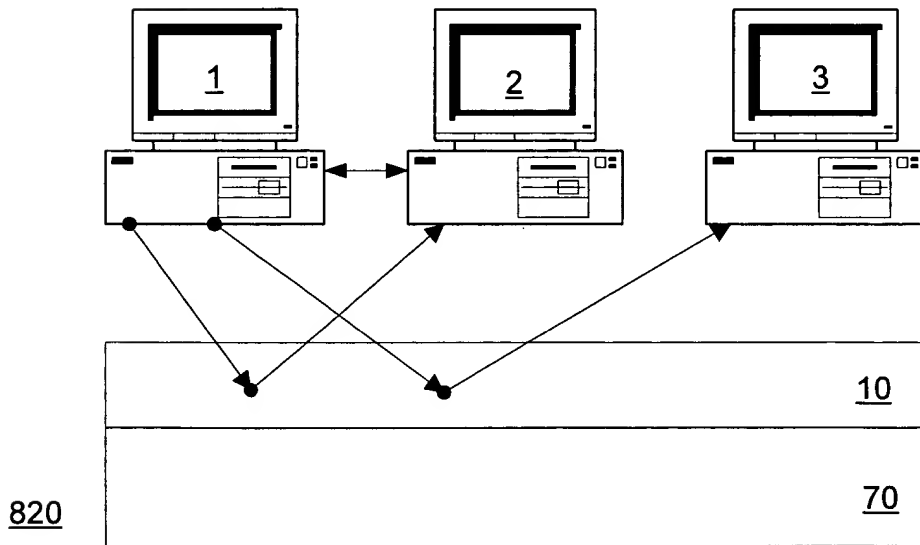


FIG. 8B

830

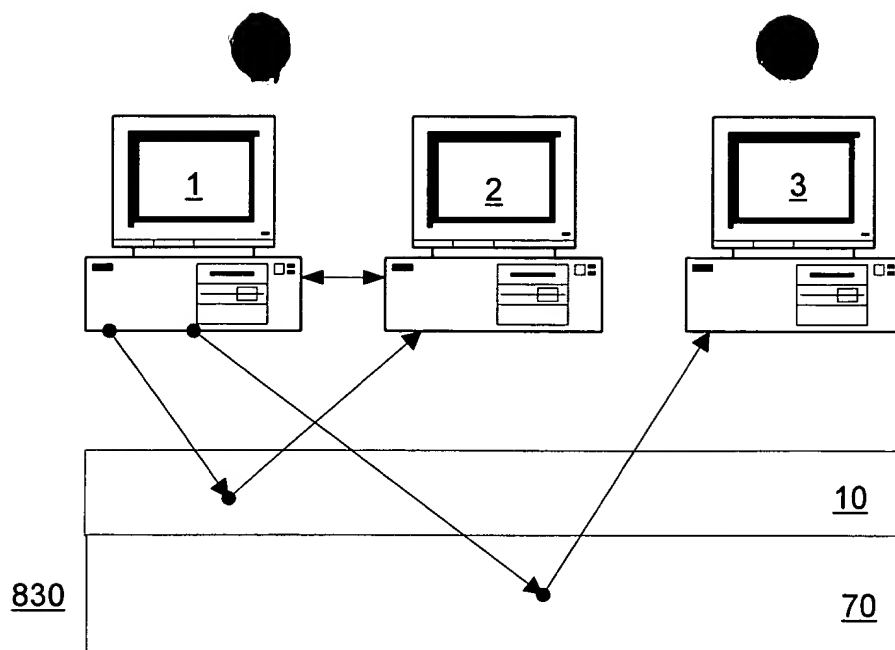


FIG. 8C

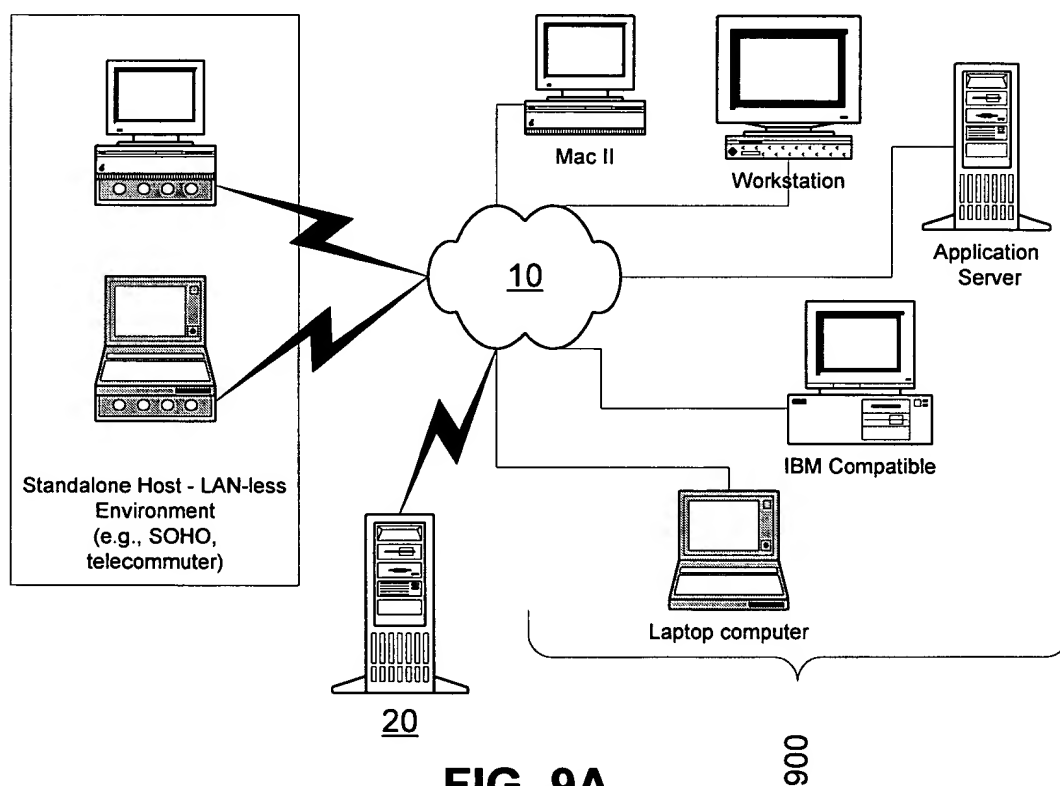


FIG. 9A

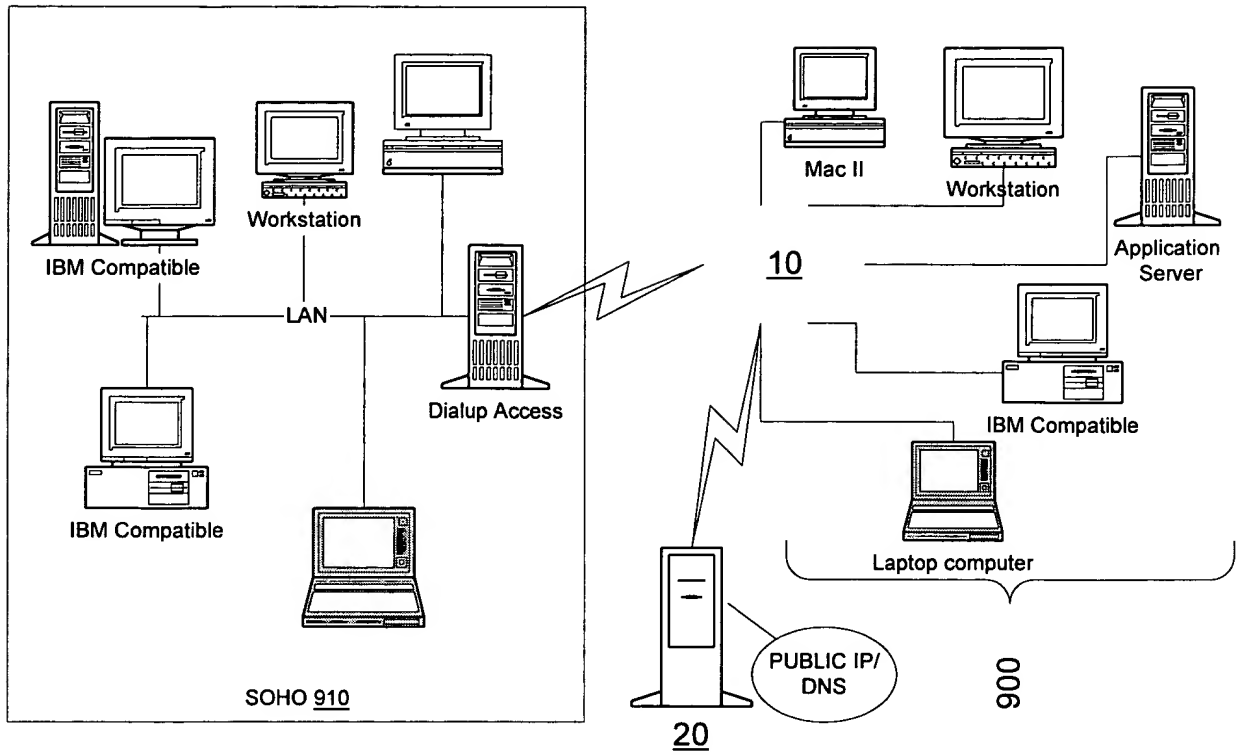


FIG. 9B

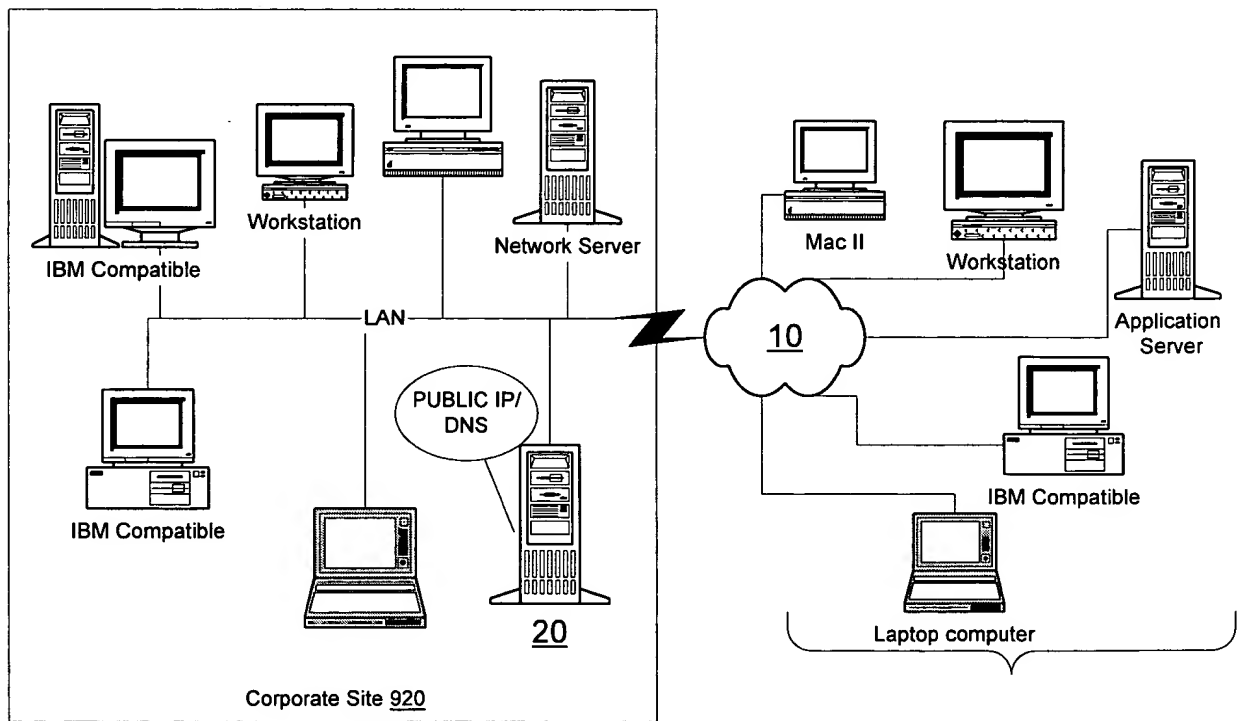
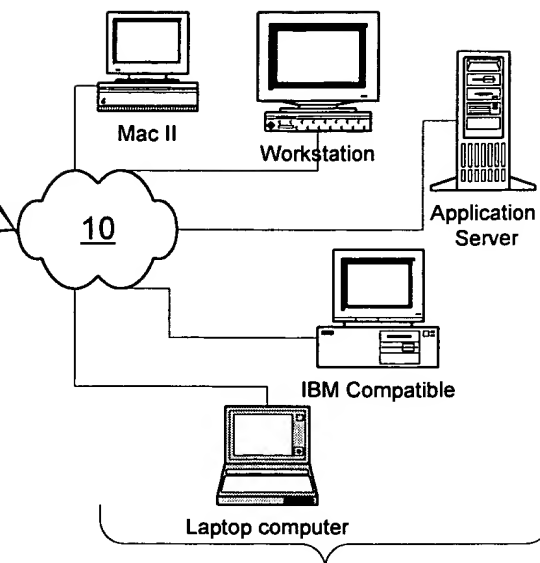
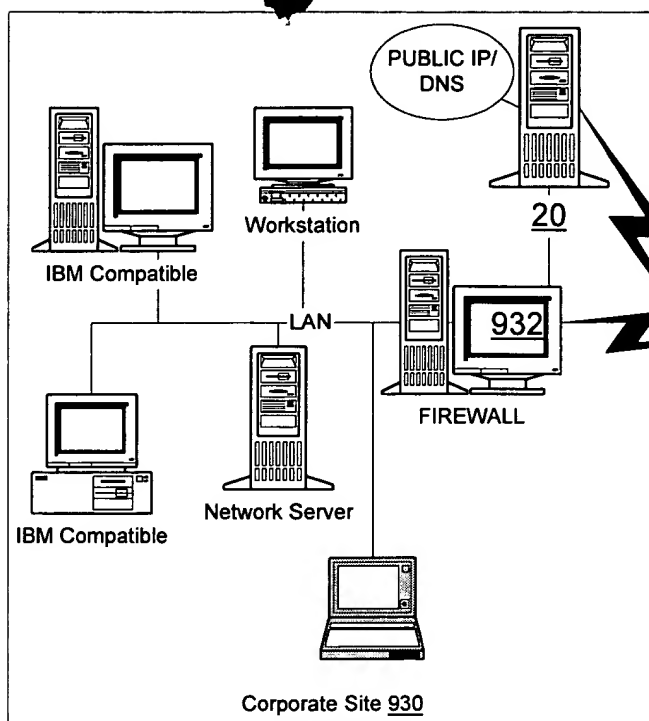
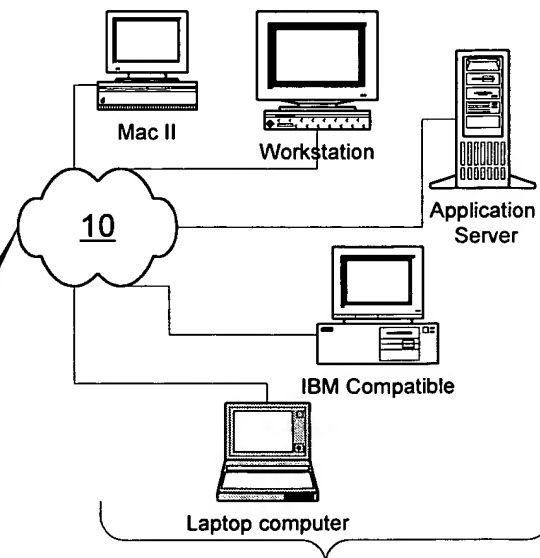
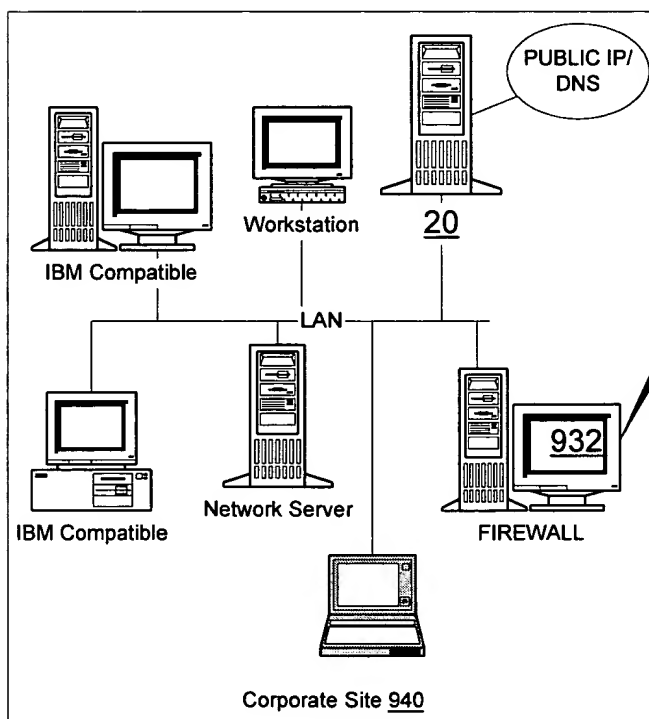


FIG. 9C



RULES
IN: VNG SERVER PUBLIC IP/PORT
OUT: POTENTIAL PARTICIPENTS IP/PORT

FIG. 9D



RULES
IN: VNG SERVER PUBLIC IP/PORT
OUT: VNG SERVER PUBLIC IP/PORT

FIG. 9E